PANA0001-100
(formerly PANA-0002)

PATENT APPLICATION

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

In the Claims:

Please cancel claims 1-8, 10-20, 22 and 31 without prejudice to their presentation in another application.

Please amend claim 48 and add new claims 61-79 as follows:

Claim 1-41 (Canceled)

Claim 43 **(Previously presented)** A method of treating a human individual who has cancer, the method comprising the step of administering to the individual a therapeutically effective amount of a plurality of polynucleotide molecules that are free of vector sequences, wherein

the plurality of polynucleotide molecules collectively comprises an essentially complete human genome from an individual who does not have cancer;

each of the plurality of polynucleotide molecules having about 100-3000 nucleotides.

Claim 44 **(Previously presented)** The method of claim 43 wherein the plurality of polynucleotide molecules are free DNA.

Claim 45 **(Previously presented)** The method of claim 43 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length.

Claim 46 **(Previously presented)** The method of claim 43 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length and have an average length of about 300-1000.

Claim 47 **(Previously presented)** The method of claim 43 wherein at least 80% of polynucleotide molecules administered are about 300-2000 nucleotides in length.

Claim 48 **(Currently amended)** A method of treating a human individual who has a disease or disorder associated with exposure to mutagenic stimuli, or preventing an individual from developing a disease or disorder associated with exposure to mutagenic stimuli comprising the step of

administering to the individual who has been exposed to mutagenic stimuli a therapeutically effective amount of a plurality of polynucleotide molecules that are free of vector sequences, wherein

the plurality of polynucleotide molecules collectively comprises an essentially complete human genome from an individual who is not suffering from the disease or disorder; ~~does not cancer;~~ and each of the plurality of polynucleotide molecules having about 100-3000 nucleotides.

Claim 49 **(Previously presented)** The method of claim 48 wherein the plurality of polynucleotide molecules are free DNA.

Claim 50 **(Previously presented)** The method of claim 48 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length.

Claim 51 **(Previously presented)** The method of claim 48 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length and have an average length of about 300-1000.

Claim 52 **(Previously presented)** The method of claim 48 wherein at least 80% of polynucleotide molecules administered are about 300-2000 nucleotides in length.

Claim 53 **(Previously presented)** The method of claim 48 wherein the mutagenic stimuli is ionizing radiation.

Claim 54 **(Previously presented)** The method of claim 48 wherein the mutagenic stimuli is a chemical mutagen.

Claim 55 **(Previously presented)** The method of claim 48 wherein the plurality of polynucleotide molecules are administered in an amount of 0.4 – 20 g of polynucleotides having 200-3000 nucleotides each.

Claim 56 **(Previously presented)** The method of claim 48 wherein the plurality of polynucleotide molecules are administered in an amount of 1 – 16 g of polynucleotides having 200-3000 nucleotides each.

Claim 57 **(Previously presented)** The method of claim 48 wherein the plurality of polynucleotide molecules are administered by a regiment selected from the group consisting of: continuous infusion, multiple doses administered hourly, multiple doses administered daily, multiple doses administered every other day, multiple doses administered weekly.

Claim 58 **(Previously presented)** The method of claim 43 wherein the plurality of polynucleotide molecules are administered in an amount of 0.4 – 20 g of polynucleotides having 200-3000 nucleotides each.

Claim 59 **(Previously presented)** The method of claim 43 wherein the plurality of polynucleotide molecules are administered in an amount of 1 – 16 g of polynucleotides having 200-3000 nucleotides each.

Claim 60 **(New)** The method of claim 43 wherein the plurality of polynucleotide molecules are administered by a regiment selected from the group consisting of: continuous infusion, multiple doses administered hourly, multiple doses administered daily, multiple doses administered every other day, multiple doses administered weekly.

Claim 61 **(New)** A method of treating a human individual who has a disease or disorder associated with exposure to ionizing radiation comprising the step of

administering to the individual who has been exposed to ionizing radiation a therapeutically effective amount of a plurality of polynucleotide molecules that are free of vector sequences, wherein

the plurality of polynucleotide molecules collectively comprises an essentially complete human genome from an individual who is not suffering from the disease or disorder; and each of the plurality of polynucleotide molecules having about 100-3000 nucleotides.

Claim 62 **(New)** The method of claim 61 wherein the plurality of polynucleotide molecules are free DNA.

Claim 63 **(New)** The method of claim 61 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length.

Claim 64 **(New)** The method of claim 61 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length and have an average length of about 300-1000.

Claim 65 (New) The method of claim 61 wherein at least 80% of polynucleotide molecules administered are about 300-2000 nucleotides in length.

Claim 66 (New) The method of claim 61 wherein the plurality of polynucleotide molecules are administered in an amount of 0.4 – 20 g of polynucleotides having 200-3000 nucleotides each.

Claim 67 (New) The method of claim 61 wherein the plurality of polynucleotide molecules are administered in an amount of 1 – 16 g of polynucleotides having 200-3000 nucleotides each.

Claim 68 (New) The method of claim 61 wherein the plurality of polynucleotide molecules are administered by a regiment selected from the group consisting of: continuous infusion, multiple doses administered hourly, multiple doses administered daily, multiple doses administered every other day, multiple doses administered weekly.

Claim 69 (New) The method of claim 61 wherein the plurality of polynucleotide molecules are derived from autologous DNA collected from the individual before the individual is exposed to the ionizing radiation.

Claim 70 (New) The method of claim 48 wherein said individual has a disease or disorder associated with exposure to a chemical mutagen comprising the step of

administering to the individual who has been exposed to a chemical mutagen a therapeutically effective amount of a plurality of polynucleotide molecules that are free of vector sequences, wherein

the plurality of polynucleotide molecules collectively comprises an essentially complete human genome from an individual who is not suffering from the disease or disorder; and each of the plurality of polynucleotide molecules having about 100-3000 nucleotides.

Claim 71 (New) The method of claim 70 wherein the plurality of polynucleotide molecules are free DNA.

Claim 72 (New) The method of claim 70 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length.

Claim 73 (New) The method of claim 70 wherein at least 80% of polynucleotide molecules administered are about 200-3000 nucleotides in length and have an average length of about 300-1000.

Claim 74 (New) The method of claim 70 wherein at least 80% of polynucleotide molecules administered are about 300-2000 nucleotides in length.

Claim 75 (New) The method of claim 70 wherein the plurality of polynucleotide molecules are administered in an amount of 0.4 – 20 g of polynucleotides having 200-3000 nucleotides each.

Claim 76 (New) The method of claim 70 wherein the plurality of polynucleotide molecules are administered in an amount of 1 – 16 g of polynucleotides having 200-3000 nucleotides each.

Claim 77 (New) The method of claim 70 wherein the plurality of polynucleotide molecules are administered by a regiment selected from the group consisting of: continuous infusion, multiple doses administered hourly, multiple doses

administered daily, multiple doses administered every other day, multiple doses administered weekly.

Claim 78 (New) The method of claim 70 wherein the plurality of polynucleotide molecules are derived from autologous DNA collected from the individual before the individual is exposed to the chemical mutagen.

Claim 79 (New) The method of claim 48 wherein the plurality of polynucleotide molecules are derived from autologous DNA collected from the individual before the individual is exposed to a mutagenic stimuli.